

Abstract

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The invention provides for employing a complex data structure to optimize the retrieval of data from a data store over a network. The complex data structure includes two separate sub-data structures (Trie and List) that separately reference the same data objects in a data store. The complex data structure employs a functional interface to determine which data structure matches a particular function request for data. A Trie sub-data structure is used to fulfill a single data object request. The List sub-data structure is employed with function requests related to several data objects. Each data object is associated with a parent object that includes a list of every reference to the data object in both the Trie and List sub-data structures. When a data object is subsequently deleted, the parent object list is employed to automatically delete every reference to the deleted data object in both the Trie and List sub-data structures. A collector object is a type of data object that is associated with a member object and which includes a list of other related data/collector objects. When data associated with the collector object is requested, other data associated with the other data/collector objects on the member object list are automatically retrieved. The complex data structure can also use a Hash sub-data structure to retrieve single data objects.

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